



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,113	08/06/2003	Igor Ivanisevic	09013.0006-00000	2064
22852	7590	08/06/2007		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER HO, ALLEN C	
			ART UNIT	PAPER NUMBER
			2882	
			MAIL DATE	DELIVERY MODE
			08/06/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/635,113

**Applicant(s)**

IVANISEVIC ET AL.

**Examiner**

Allen C. Ho

**Art Unit**

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7, 11-19, 33, 35, 142 and 155-162 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 12, 14, 33, 142, 155, 156 and 161 is/are rejected.
- 7) ☒ Claim(s) 7, 13, 15-19, 35, 157-160 and 162 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 142 is objected to because of the following informalities:

Claim 142 recites the limitation "the relationship" in line 17. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

2. Claim 156 is objected to because of the following informalities:

Claim 156 recites the limitation "the relationship" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

3. Claim 160 is objected to because of the following informalities:

Claim 160 recites the limitation "the relationship" in line 21. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2882

5. Claims 11, 12, 14, 33, 142, 155, 156, and 161 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raich (U. S. Pub. No. 2006/0015265 A1) in view of Mitsui *et al.* (Analytical Sciences, vol. 7, December 1991) and Cullity and Stock (Elements of X-Ray Diffraction, third edition).

With regard to claim 142, Raich disclosed a method of analyzing diffraction patterns that comprises: receiving a first diffraction pattern; receiving a second diffraction pattern; receiving a third diffraction pattern (paragraph [0017]); determining a first similarity between the first and the second diffraction patterns based on the characteristic peaks of the first and the second diffraction patterns; determining a second similarity between the first and the third diffraction patterns based on the characteristic peaks of the first and the third diffraction patterns; determining a third similarity between the second and the third diffraction patterns based on the characteristic peaks of the second and the third diffraction patterns (paragraph [0026], lines 10-22); and performing hierarchical cluster analysis on the first, the second, and the third diffraction pattern based on the determined first similarity, the second similarity, and the third similarity (paragraph [0026], lines 10-22).

However, Raich failed to disclose the steps of: detecting the characteristic peaks of the first diffraction pattern; detecting the characteristic peaks of the second diffraction pattern; and detecting the characteristic peaks of the third diffraction pattern.

Mitsui *et al.* disclosed a method of analyzing x-ray diffraction patterns that comprises: detecting characteristic peaks of diffraction patterns (p. 942, in the section of preparation of filed data); and determining similarities between diffraction patterns (p. 942-943, in the section of cluster analysis).

Art Unit: 2882

Furthermore, Cullity and Stock taught that a diffraction pattern can be characterized and/or identified by its characteristic peaks (Chapter 9).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to detect characteristic peaks in diffraction patterns and to determine similarities between diffraction patterns based on the characteristic peaks of the diffraction patterns, since all of the structural information of a material is contained in the characteristic peaks.

With regard to claim 11, Raich, Mitsui *et al.*, and Cullity and Stock disclosed the method of claim 142, wherein determining the similarities based on the peaks comprises: detecting crystalline peaks in the diffraction patterns (Raich, paragraph [0014], lines 1-3); and matching the diffraction patterns based on the detected crystalline peaks (Raich, paragraph [0018]).

With regard to claim 12, Raich, Mitsui *et al.*, and Cullity and Stock disclosed the method of claim 142, wherein determining the similarities based on the peaks comprises: detecting amorphous peaks in the diffraction patterns (amorphous peaks are detected by the diffractometer when the material is amorphous); and matching the diffraction patterns based on the detected amorphous peaks (Raich, paragraph [0018]).

With regard to claim 14, Raich, Mitsui *et al.*, and Cullity and Stock disclosed the method of claim 142, wherein determining the first similarity comprises comparing one or more characteristic peaks in the first diffraction pattern with one or more characteristic peaks in the second diffraction pattern (Mitsui *et al.*, p. 942, in the section of preparation of filed data).

With regard to claim 33, Raich, Mitsui *et al.*, and Cullity and Stock disclosed the method of claim 142, wherein the similarity between x-ray diffraction patterns is defined as the sum of

Art Unit: 2882

the differences in intensities between the two patterns at each  $2\theta$  (paragraph [0018]). However, Raich failed to disclose x-shifting the first diffraction pattern prior to determining the similarity between the first diffraction pattern and the second diffraction pattern and determining the similarity between the first diffraction pattern and the third diffraction pattern.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to x-shift the first diffraction pattern prior to determining the similarity between the first diffraction pattern and the second diffraction pattern and determining the similarity between the first diffraction pattern and the third diffraction pattern, since a person would be motivated to align the first diffraction pattern with the second and the third diffraction patterns to match their  $2\theta$  range.

With regard to claim 155, Raich, Mitsui *et al.*, and Cullity and Stock disclosed the method of claim 33. However, Raich failed to teach that the x-shifting is done automatically.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to x-shift the first diffraction pattern automatically, since a person would be motivated to automate the process.

With regard to claim 161, Raich, Mitsui *et al.*, and Cullity and Stock disclosed the method of claim 142, wherein the relationship among the received diffraction patterns is displayed as a dendrogram (Raich, Figs. 1, 4).

With regard to claim 156, Raich disclosed a method of analyzing diffraction patterns that comprising: receiving a first diffraction pattern; receiving a second diffraction pattern (paragraph [0017]); determining a similarity between the first and the second diffraction patterns based on the characteristic peaks of the first and the second diffraction patterns (paragraph [0026], lines

Art Unit: 2882

10-22); performing hierarchical cluster analysis on the first and the second diffraction pattern based on the determined similarity (paragraph [0026], lines 10-22); and displaying the relationship among the received diffraction patterns (Figs. 1, 4, and 5).

However, Raich failed to disclose a method of analyzing patterns that comprises: determining the characteristic peaks of the first diffraction pattern; determining the characteristic peaks of the second diffraction pattern.

Mitsui *et al.* disclosed a method of analyzing x-ray diffraction patterns that comprises: determining characteristic peaks of diffraction patterns (p. 942, in the section of preparation of filed data); and determining similarities between diffraction patterns (p. 942-943, in the section of cluster analysis).

Furthermore, Cullity and Stock taught that a diffraction pattern can be characterized and/or identified by its characteristic peaks (Chapter 9).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine characteristic peaks in diffraction patterns and to determine similarities between diffraction patterns based on the characteristic peaks of the diffraction patterns, since all of the structural information of a material is contained in the characteristic peaks.

#### ***Allowable Subject Matter***

6. Claims 7, 13, 15-19, 35, 157-159, and 162 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2882

7. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claim 160, the prior art fails to disclose a method of analyzing patterns that comprises assigning probability scores to the determined peaks of the first, second, and third diffraction patterns as claimed.

***Response to Amendment***

8. Applicant's amendments filed 23 April 2007 with respect to claim 14 have been fully considered and are persuasive. The objection of claim 14 has been withdrawn.

9. Applicant's amendments filed 23 April 2007 with respect to claims 7, 11-19, 33, 35, 142, and 155-158 have been fully considered and are persuasive. The rejection of claims 7, 11-19, 33, 35, 142, and 155-158 under 35 U.S.C. 101 has been withdrawn.

***Response to Arguments***

10. Applicant's arguments with respect to claims 11, 12, 142, and 156 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2882

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen C. Ho/  
Primary Examiner  
Art Unit 2882

02 August 2007